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TIK WORKING PAPERS

ON

Innovation Studies

No. 20091217

<http://ideas.repec.org/s/tik/inowpp.html>

Navigation in new terrain with familiar maps: Masterminding socio-spatial equality through resource oriented innovation policy.

Forthcoming in Environment and Planning A, volume 42, 2010

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Abstract: *This paper explores how political struggles influence innovation policy through a Norwegian case study on the formation of a state-funded research and development program for utilizing natural gas feedstock from the North Sea. Despite the apparent dominance of business, specialized branches of the state, and R&D institutions in the realm of innovation policy, the key argument of this paper is that labor unions and regional interests exert considerable influence in shaping national innovation policy, in particular when reflexively exploiting new forms of state accumulation strategies while retaining a defensive stance against deindustrialization. First, we argue that the struggle for state funding to natural-gas-based R&D was particularly effective because appropriate strategic political networks and alliances were mobilized. Second, the construction of strategic arguments to accommodate the social corporatist heritage of state intervention on the one hand and the competition-oriented language of flexible specialization on the other, proved crucial for acceptance as a state strategy. The paper engages a Strategic– Relational Approach to state theory and argues that this is a useful starting point when studying how particular contexts affect how and why certain innovation policies emerge. In doing so, we also address the lack of political analysis in innovation studies.*

1. Introduction

While several contributions within the field of innovation studies ask for policies that embrace the interests and abilities of labor and less favored regions (Guth, 2005; Lundvall, 2002; Lundvall and Lorenz, 2006; Rutherford and Holmes, 2007; Schienstock, 2001), the institutional and political preconditions and processes behind such innovation policies have rarely been studied (Edquist, 2001; Lundvall et al, 2002). This paper explores how political strategies by organized interests confront the competing institutional structures of traditional social corporatism (Katzenstein, 1985) and emergent competition state logics (Jessop, 2002) in innovation policy construction. This is illustrated by a Norwegian case study of the formation of a national R&D program for the industrial utilization of natural gas. Inspired by the Strategic–Relational Approach (Jessop, 2007), we focus on how the Norwegian state is the target as well as the arena for the shifting power struggle between social groups that seek to influence innovation policy and natural resource management. In particular, we highlight how spatio–temporal contingency and the rescaling of state power affect this balance of forces. We thus suggest an approach to innovation policy where labor and regions with claims for equalizing and balancing state policies (Brenner, 2004, page 106) have a stronger influence. This Keynesian tendency has been challenged in recent years, and the Norwegian state accumulation strategy has seemed to move in the direction of competition state logics, (Amdam and Bukve, 2004) where also a decline of corporatist influences on industrial policy (Reitan et al., 2008) has been noticeable. As such, we juxtapose two *ideal types* of strategic selectivity for innovation policy through which political strategy is mediated..

It is relevant to highlight the particular scope of natural resource governance (Perreault, 2006). To date, Norway exports almost 99 percent of its natural gas overseas (NPD, 2007), mainly because of a combination of cheap domestic hydroelectric power and the existence of a mature market for natural gas on the European continent and in the UK at

the time of discovery in the late 1960s (Nerheim and Dahlberg, 1996). Path-dependent infrastructure patterns have thus impeded efforts to increase domestic use despite overt state strategies for increasing domestic industrial activity related to the country's petroleum resources (Cappelen and Mjøset, 2009). Moreover, political-economic regulation through membership in the European Economic Area and state-controlled petroleum companies' concerns for shareholders (Engen, 2009) make grand state investments to create a larger Norwegian market for natural gas less likely. We argue that innovation policy represents a different kind of opportunity for embedding natural resources in domestic space, creating a revitalization and renewal of natural resource claims.

The next section provides the theoretical background. We turn to the strategic-relational approach as a framework for understanding the struggles and selectivities of resource-based innovation policy. We pay specific attention to how political strategies of labor unions and regional interests are moderated by contrasting contexts for state selectivity. Hay's (1998) categories of strategic networking and strategic formulation are engaged as operational tools for exploring aspects of structure-agency and spatio-temporal contingency that are all related to the strategic-relational approach. Following an account of the Norwegian legacy of resource-oriented industrial policy in section 3, section 4 first discusses the emergence of strategic networks that actively initiated and shaped the large "Gassmaks" Research Program. Then, we demonstrate how the research program was promoted through strategic argumentation. This is analyzed with reference to the contrasting ideal types of strategic selectivity. In our conclusion, we touch upon possible policy failures associated with this kind of politics of innovation and set it against other national experiences. The study is based on 20 semistructured interviews with involved policy actors in addition to key documents and attendance at meetings and conferences.

2. Theoretical background

Edquist (2001, page 18) defines innovation policy as “[...] public action that influences technical change and other kinds of innovations. It includes elements of research and development (R&D) policy, technology policy, infrastructure policy, regional policy and education policy”. Smits and Kuhlmann (2004) point to three general tendencies in the innovation policy literature. First, it emphasizes a departure from the linear model and its precept of automatic transfers of scientific discoveries to innovation in firms. Second, in contrast to the linear model, the systemic perspective directs policy analysis towards the institutional context of innovation. Third, by adopting institutional analysis instead of neoclassical ideas of optimization as the basis for policy advice, interventions to reduce uncertainty and encourage experimentation and learning are often recommended.

While early contributions in the field focused on national systems of innovation (Lundvall, 1992), later contributions emphasized the increasingly multiscalar character of innovation systems. (Cooke et al., 2000; Doloreux and Parto, 2005; Kuhlmann, 2001; Tödtling and Trippl, 2005). However, while discussions about the increasingly multiscalar nature of innovation processes (Asheim and Gertler, 2005; Bunnell and Coe, 2001) that often question the capacities (Grande, 2001) for nationally and regionally based innovation strategies have emerged, there have been few attempts at understanding the political struggles surrounding innovation strategies. In this respect, the literature on innovation policy rarely mentions contributions that highlight inherent sociospatial tensions (Brenner, 2004; Jones, 2001; Swyngedouw, 1997) or political strategies (Hay, 1998, 2004). Przeworski (2004) addresses similar shortcomings in much contemporary institutional analysis. Edquist (2001) also highlights this weakness when he admits that the innovation literature does not provide an analysis of the role of the state.

Exceptions do exist. Lundvall (2002) focuses on how less autonomy for workers and greater job insecurity may undermine learning. Schienstock (2001) criticizes the learning economy for having socially exclusionary effects, implicitly linking a focus on innovation to increasing power differentials between employers and employees. Guth (2005) calls for more socially inclusive and participative forms of regional associative governance (as in Cooke et al, 2000) to counteract territorial and social imbalances within the EU.

The strategic relational approach and the politics of innovation

We argue that a useful way of approaching the politics of innovation is through the *strategic-relational approach* (SRA) (Jessop, 2007). Although conceived as a broad approach to social theory, the perspective has been applied to the study of state-economy relations, most famously by Jessop (2002) when analyzing the transition from a Keynesian Welfare State to a Schumpeterian Workfare State Inspired by Poulantzas (1978), SRA entails a specific way of seeing the state, state institutions and all those agents involved in the different priorities of the state as a social relation. More specifically: “[...] the strategic-relational state approach [...] implies that the exercise of state power... involves a form-determined condensation of the changing balance of (social) forces.” (Jessop, 2002, page 40). Jessop pays specific attention to the gap in the innovation literature identified above, namely by analyzing how state policies are actively shaped by and reproduced through particular political strategies and how the power balance between different forces affects particular outcomes. This is an important point in our paper as we argue that innovation policy should not be seen as predetermined by the interests of business alone, but rather as an expression of the intersection of social forces at a specific spatial-temporal junction.

The question of structure and agency in the SRA is dynamic and aims to “[...] examine structure in relation to action and action in relation to structure, rather than

bracketing one of them” (Jessop, 2001, page 1223), thus aiming to go beyond the duality of structure–agency in Giddens’ (1984) structuration theory. Even if the state could be seen as more receptive to some interests over others, it does not automatically mean that selectivity is chosen regardless of *how* these interests are pursued. Rather, the priorities of the state are strategic (Jessop, 2007) in that they encompass the strategies of a multitude of actors and interests, some more persuasive than others. Strategic selectivity is a key concept when attempting to grasp this relational approach to structure and agency, involving “[...] the ways in which the state [...] has a specific, differential impact on the ability of various political forces to pursue particular interests and strategies in specific spatial–temporal contexts” (Jessop, 2002, page 40). The emergence of a particular strategic selectivity is indeed a structural constraint to agency. These may form into selectivities that are relatively stable—giving the impression of a certain “[...] unity of state power” (Poulantzas, 1978, page 136). As a replacement for the “unity” of the “Keynesian welfare state”, the idea of a “Schumpeterian Competition State” (Jessop, 2002, page 95) implies a conception of new forms of state governance that cater for more flexible and competition-based accumulation. This kind of selectivity has tended to privilege the needs of business at the expense of actors arguing in favor of social and spatial redistribution (Painter and Goodwin, 2000). Brenner (2004) discusses how spatial redistribution schemes during the reign of the Keynesian welfare state have become largely replaced by and rescaled to regional and metropolitan competition-oriented entrepreneurship. Nevertheless, SRA reminds us that despite emergent hegemonies, there are great spatial–temporal differences as to how the balance of social forces is distributed. Scharpf and Schmidt (2000) argue that institutional and discursive traits from the Keynesian era often balance the imperatives of the international neoliberal order, offering “counter-hegemonic discourses and practices” (Lagendijk, 2007, page 1197). The *Variety of Capitalism* stream similarly reminds us of the historical and geographical contingencies

affecting state selectivity to economic policy, not least in including labor interests (Thelen, 2001).

The concept of discourse has emerged as integral to SRA. Jessop (2007) recognizes Hay's (e.g. 1998) early contribution in highlighting that the distinction between the discursive elements and the materiality of state selectivities is blurred and that attention to the power of discourse is needed, echoing Foucault's governmentality (Jessop, 2007). The use of discourse within SRA was, however, limited until Sum and Jessop (2008) elaborated their SRA-based approach *Cultural Political Economy* (Jessop, 2007, page 15). Here, the state is not only a compromise between class and interest fractions, but also a strong bearer of discourses that carry with them specific state selectivities that permeate state institutions. This is also reflected in institutional theory, which highlights the role of norms that are embedded in particular spatial-temporal contexts (Schmidt, 2002) as we will return to below.

Political agency and the SRA

Since we highlight the agency of labor in influencing innovation policy in this paper, it is relevant to draw upon some of the existing insights about this relationship. Rutherford and Holmes (2007) indeed stress the importance of labor agency in shaping industrial policy and strategy. It is also important to note that the preconditions for labor agency have changed dramatically following the shift in state selectivity towards "workfarism" (Peck, 2001). Tufts (2008, page 1) notes that unions have altered their strategies according to these shifts through what he terms "Schumpeterian unionism". This kind of unionism directs strategies to the global and regional scale rather than the traditional level of the national scale because of the rescaling of economic activities and regulation. He also claims that unions adopt innovation and flexible specialization into their vocabulary to retain worker influence. While one can argue that the flexible workfare regimes undermine those worker rights that were patiently

constructed in the postwar period (Peck, 2001), the reflexive exploitation of opportunities that exist within the parameters of flexible specialization may imply labor union influence.

In order to explore how agency is reflected in our case study, we have engaged Hay's (1998) models of *strategic networks* and *strategic formulation* within the SRA framework. We find these categories useful tools for analysis as they reflect the agency of building alliances discussed above, as well as the importance of discursively embedding strategy in hegemonic or competing strategically selective contexts. Networks can be understood as "[the] reflexive self-organization of independent [public and private] actors involved in complex relations of reciprocal interdependence [...]" (Jessop, 2002, page 152). Further, the implications of network cooperation can be seen as transcending the mere exchange of resources. Norms and the development of common understandings may also contribute to stronger network commitment and reflexive strategic learning (Ansell, 2000). Hay (1998) contends that a "*network hegemony*" often takes charge in defining important strategies and alliances (see figure 1). Moreover, the choice of partners in a strategic network may also change according to a flux in strategic state selectivity. The formation and governance of strategic networks aiming to influence, in this case, innovation policy, can be expressed through Hay's network model:

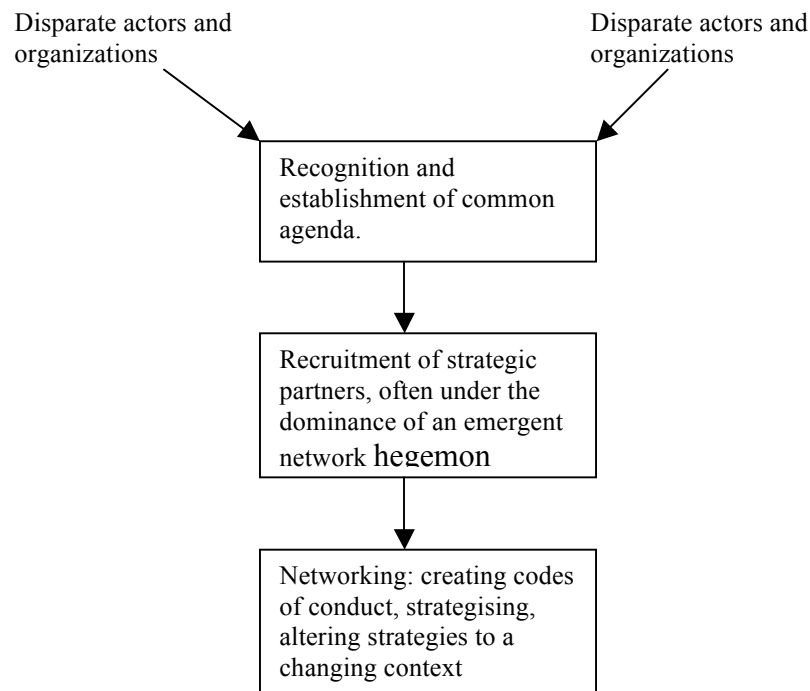


Figure 1. Strategic networks (based on Hay, 1998, page 46)

Figure 1 does not reflect the fact that the actors may not be disparate at all, but rather that they have joint interests that have not been realized because of insufficient interaction. Long-standing norms and mechanisms that have enabled cooperation between and within organizations in the past, can be seen as key factors for realizing successful networking (Ansell, 2000). Nevertheless, this structuring element has to be complemented by the creative configuration of each particular network, as Hay (1998) asserts. The role of the network hegemony is of particular interest, as power can be about the ability to influence the actions of others and to master systems of shared meaning (Giddens, 1984), demonstrating an interactive or networked understanding of power (Allen, 2003) that highlights creative configurations of society's mobilizing forces.

Hay's model for strategic formulation (Hay, 1998, page 143) demonstrates the structured agency (Jessop, 2001) in maneuvering in and between discursive strategically

selective contexts (see figure 2). In our modified version, we particularly highlight the role of argumentation for reaching policy legitimacy (Schmidt, 2002).

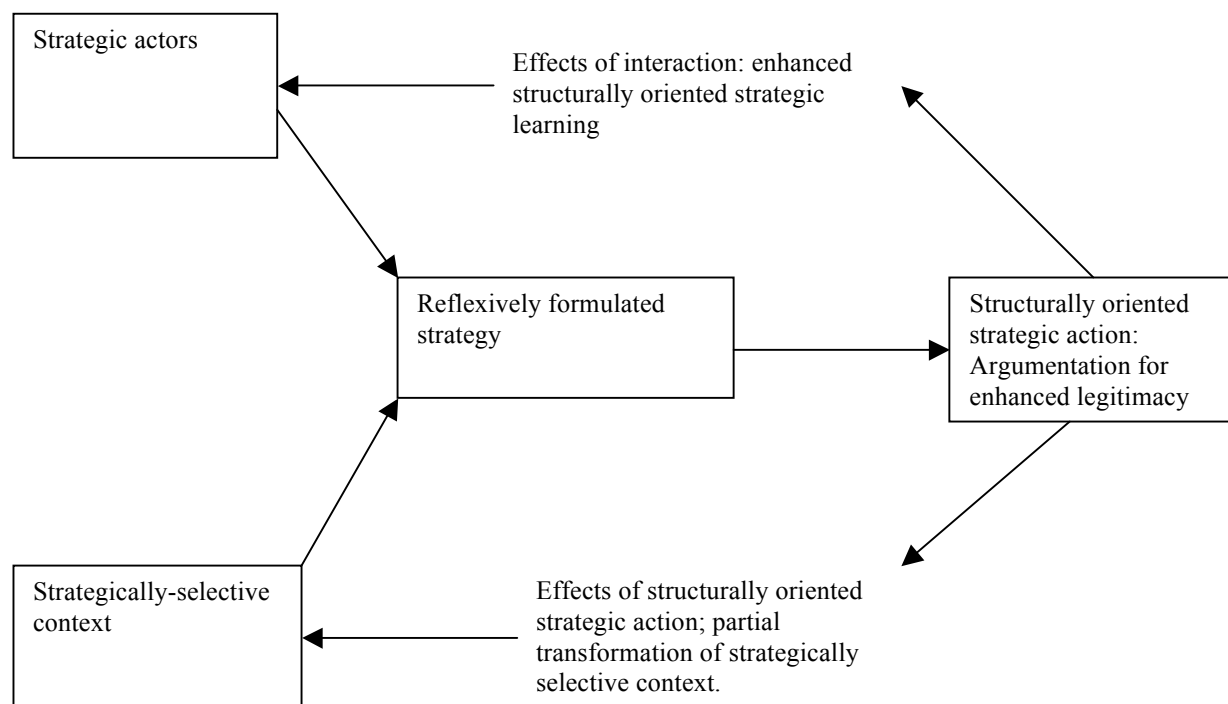


Figure 2. Strategic formulation (based on Hay, 1998, page 43 and Jessop, 2001, page 1224)

It is necessary to elaborate on what we mean by enhanced legitimacy in political strategy. Schmidt (2002) emphasizes that spatial–temporal contingencies are crucial for understanding how economic policy areas such as innovation are politicized and legitimized. She argues that, in order to gain political thrust, strategic actors have to adopt hegemonic discourses in various scales and spheres. She first singles out arguments that follow a *necessary* logic, as they are in accordance with established scientific discourse on economic policy. This resonates with the hegemonic position of neoliberal economic regulation and the primacy of the global scale of economic organization (Brenner, 2004; Peck and Tickell, 2002). Schmidt (2002) also asserts that *normative* arguments of appropriateness constitute political strategy. These arguments are spatially–temporally contingent and may be counter-hegemonic to

established scientific discourses. In SRA terms, the balance between these forms of legitimization is important for understanding the balance of forces in a particular policy area.

3. The politics of Norwegian resource-based industrialization

The role of the state and the trade unions in supporting the build up of key Norwegian industries constitutes an important backdrop to our case study. Historically, state involvement preceded trade union involvement. Following the introduction of parliamentary democracy in 1884 and independence in 1905, the social liberal party *Venstre* continued and expanded an interventionist tradition established by Norwegian technocrats under Swedish rule (Slagstad, 1998). Mounting foreign investment in natural resources provoked a series of concession laws between 1906 and 1917 that secured government control over forests, mines and abundant hydropower resources as well as privileges for national industrialists and technology transfer requirements (Wicken, 2009a). This is crucial for understanding the later politics of Norway's resource-based industrialization.

This “resource nationalism” continued into the postwar period when centralized trade unions backed the Labor government in supporting the construction of electrochemical industries linked to public hydropower installations along the coast (Mjøset, 1986; Wicken, 2009b). The interventionist legacy also shaped petroleum resource management after the discovery of the North Sea fields from 1969, with concession agreements for foreign companies securing government revenues as well as R&D investments and technology transfers. Infant supply and service industries were protected from foreign competition throughout the 1970s and 1980s (Engen, 2009).

Similar logics also characterized the limited use of natural gas. Industrial organizations advocated the landfall of gas for domestic refining and industrial processing from the mid-1970s despite the lack of a market. This process followed the classical trajectory of

Norwegian resource-based industrialization, with explicit references to the “natural resources curse” (Auty, 1995). As a result, the state contributed to the establishment of the Norwegian petrochemical industry in the manufacturing region of Grenland during the 1970s in an attempt to spur the use of natural gas feedstock domestically (Berrefjord, 1982).

As for the electrochemical and the petroleum extraction industries, natural-gas-based manufacturing was supported by R&D programs carried out by research institutes as well as in-house R&D in Statoil and Hydro within a framework of state-led creation of new industries (Wicken, 2009a). Top executives within the Labor Party and the Norwegian Confederation of Trade Unions (LO) were the main drivers of these innovation policies, embedded in the broader framework of Spatial Keynesian (Brenner, 2004) redistributive regional development (Slagstad, 1998).

The state-driven industrial and innovation policy system rested on broader social foundations that offered comparatively strong privileges for labor and the regions, subsumed in Katzenstein’s (1985, page 32) concept of “social corporatism”. Katzenstein’s point of departure was the observation that the centralized elite cooperation typical of small, advanced European states in the postwar period was matched by an ideology of partnership and bargaining between a multitude of interest groups in relatively open policy networks. However, while such networked industrial policy routines were common for all these small states and categorized broadly as “democratic corporatism”, Katzenstein (1985, page 105) noted a distinct “social corporatism” variety in Scandinavia and Austria diverging from more business-dominated models by virtue of the strength of organized workers and a corresponding tendency to *politicize* investment and employment issues. Given the strength of industrial unions and Labor’s alliances with regions endowed with natural resources (Sejersted, 2005, Mjøset 1986, Lipset & Rokkan, 1967), industrial and innovation policies focused on using oil and gas resources as tools for achieving industrial employment and

balanced regional development can be seen as major examples of social corporatism in Norway..

These characteristics were challenged from the early 1990s. Reflecting a shift of regulatory ideas away from interventionism (Østerud & Selle, 2006) as well as European Economic Area restrictions, the Norwegian state reduced its use of the companies Statoil and Hydro as regional and industrial development vehicles, compounding competitive pressures on many coastal regions (Baldersheim and Fimreite, 2005; Engen and Ryggvik, 2005; Lie, 2005). The companies themselves—with substantial remaining state shareholdings—were increasingly allowed to adopt strategies driven by shareholder value and global portfolio considerations. This restructuring and rescaling of company strategies was embraced by the powerful Ministry of Oil and Energy, and perceived as being supported by public policies, R&D policies included, from the 1990s (interview with former Minister of Trade and Industry Odd Eriksen, 2007; Wicken, 2009a). Below, we argue that instead of *replacing* social corporatism as a strategically selective context for innovation policy, these competition state tendencies met strong resistance. Actors associated with the logic of social corporatism mobilized in favor of innovation strategies, reinforcing the traditional focus on domestic industrial employment and regional development, although with a distinct “Schumpeterian flavor”.

4. Labor agency and regional consolidation through a national innovation program

The national research program Gassmaks for the domestic industrial utilization of natural gas feedstock was presented by the Research Council of Norway (RCN) in August 2006 (RCN, 2006). The report recommended a research program with an 8–10-year life span, with public funding to basic and applied R&D in firms and research institutions of NOK 1.1 billion. This makes Gassmaks one of the largest Norwegian publicly funded research programs to date. An

initial NOK 26 million was granted in 2007 (MoF, 2006; RCN, 2007). Program priorities included research on petrochemical products and processes, gas-to-energy processes and fuels, the conversion of gas feedstock to materials, and finally, gas as a feedstock to the production of bioproteins.

Gassmaks as a strategic network

We argue that three core interest organizations and one strategic partner (Hay, 1998) proved particularly influential in establishing Gassmaks. The core organized interests included the Norwegian Gas Forum (NGF), LO (dominated by the chemical, electrochemical and petroleum workers' union *IndustriEnergi*) and the enterprise organization *Norwegian Industry* (NI).

NGF is an organization comprised of 12 regional networks that promote the use of natural gas in their local areas (NGF, 2008). These networks, of which the earliest emerged in the late 1980s, were mostly initiated by regional politicians or bureaucrats and exemplify the emerging tendency of self-governed competitive strategies (Brenner, 2004). The explicit focus on industrial utilization of natural gas feedstock primarily came from the manufacturing-dominated regions of Telemark and Nordland, while other regions were more concerned with natural gas for energy purposes in buildings and vehicles. The regions seemed to target state investments rather than private capital in their claims for infrastructure. While initiatives were scattered and somewhat competing at first, a more coherent strategy was chosen by NGF when the regions recognized mutual benefits in several policy areas (Reitan et al., 2008). Consistent support for a gas pipeline to the Telemark region (Underthun, 2008) and Gassmaks are examples in point. The support for the Gassmaks process means we refer to NGF when regional interests are discussed in the remainder of this paper. LO and The Labor Party established the *Henriksen Committee* in 2000 to develop a strategy for domestic use of

natural gas in Norway (interview, LO, 2007). While this was a centralized initiative from LO, the regions were consulted when evaluating strategies: “[...] we took a journey along the coast to identify the interests and potential of the regions” (interview, Henriksen committee member, 2007). This illustrates the intertwined networks at work and a rescaling of union strategies (Castree et al., 2004; Tufts, 2008). The resulting report (LO and AP, 2001) gave specific recommendations on state responsibilities for gas infrastructure as well as a more thorough strategy for utilizing feedstock in manufacturing. However, the transfer of governmental power from the Labor Party to the center-right Bondevik II government in 2001 put implementation on hold (interview LO, 2007).

The Henriksen committee was not the only forum through which LO pursued their interests. As a part of the *Konkraft* cooperation with NI, the Organization of Norwegian Shipping and the Organization of the Petroleum Extraction Industry, LO urged the other organizations to find ways in which the domestic use of natural gas could be enhanced. This work is reflected in two reports (KONKRAFT, 2002; PIL, 2002). This more traditional corporatist and centralized form of agency towards business interests was considered equally important by LO members (interview, LO 2007) at the time, thus reflecting the multitude of labor union strategies in gas politics.

While the petroleum extraction companies were moderate in their enthusiasm for domestic utilization in the period that followed, LO had its most important ally in NI, who continued campaigning for domestic utilization during the reign of the Bondevik II government from 2001 to 2005 (interview, NI, 2007).

Coinciding with these policy initiatives, Sintef and the Norwegian University of Science and Technology (NTNU)—centerpieces of the postwar industrial research system described in section three—lobbied for a substantial R&D program on natural gas. The research community argued that state-supported R&D in this area had been scarce since the

end of the research program SPUNG in 1993. As strategic partners to the core interest groups described above, Sintef and NTNU provided crucial scientific information and lent legitimacy to the development of policy ideas. However, the research group did not share all the strategic goals of the other interest groups (interview, Sintef 2006). The scaling of activities was one of these, because building international prestige through research cooperation beyond Norwegian borders was emphasized to a greater extent by Sintef/NTNU (interview Sintef, 2006).

Thus, cooperation between these strategic organized interests started emerging in the 2000-2004 period. However, we argue that the decisive strategic networking (Hay, 1998) behind the concrete innovation strategy in question took place between 2004 and 2007.

The strategic interaction between NGF and the peak organizations was institutionalized as the *Gas Alliance* (GA) during the autumn of 2004, with the main aim of influencing the parliamentary decision on developing domestic gas infrastructure (Reitan et al., 2008). The interaction was strategic in the sense that the different actors were dependent on each other's strengths to gain acceptance for common goals. LO and NI enjoyed strong institutional capacities and a long tradition for cooperation, yet they also depended on NGF and the regions for parliamentary support, reiterating the importance of the regional scale for industrial policy and political representation. This rescaling of political strategy from LO was emphasized by the claim that it "[...] was a great advantage to the campaign when we started the cooperation with NGF as we mobilized all these regional political muscles" (interview, LO, 2007). NGF benefited from the capacity of the peak organizations and the harmonizing effect the interaction had on interregional competition (interview, NGF, 2006). NGF thus followed LO's advice on developing common national frames rather than continuing a "[...] competitive stalemate of priorities" (interview, NGF, 2006). All the interlocutors viewed the

networking and strategic rescaling of strategies as beneficial when attempting to shift state strategic selectivity in the policy area of natural gas management.

Gassmaks emerged as a reflexive result of this cooperation. In the planning stage, the three core interest organizations contacted the research community at Sintef/NTNU. The research community proposed research areas in the period that followed, and received suggestions from other Norwegian research groups and firms through an open hearing. Interestingly, some of these firms were seen as promoting a different kind of state selectivity in Norwegian natural gas management to the core interest organizations. Yet, they represented an important potential for technological upgrading in the domestic refining of gas if the right innovation policy platform was established (interviews, LO and NGF, 2008). Ideas from the draft in progress were presented at a national gas conference by LO in early 2005 (Hongset, 2005).

The Labor Party supported initiatives by the Gas Alliance mostly because of the established cooperation with LO and the prominence of Labor Party politicians in NGF (NGF, 2008). The fact that the Labor Party became the dominant party of the new left-center government of 2005 helped the Gas Alliance and its work to put in place Gassmaks. The inaugural *Soria Moria Declaration* (TNG, 2005) from the new government included a clear focus on domestic gas utilization. This renewed prominence of interventionism and the centrality of the strategic networks described above was demonstrated when Odd Eriksen, chairman of NGF and a leading advocate for Gassmaks, went on to become Minister of Trade and Industry for the Labor Party in 2005.

The first draft of Gassmaks was presented by The Confederation of Norwegian Enterprise (on behalf of *Norwegian Industry*), LO and NGF in December 2005 (NHO et al., 2005) at a meeting with the Ministry of Trade and Industry, the Ministry of Oil and Energy and the Ministry of Education. Continuous revision throughout the spring of 2006 took place

under the supervision of RCN. In August 2006, the final version was accepted by the government (RCN, 2006). Since then, a board headed by LO has been established and the first rounds of applications and grants have been completed (RCN, 2008).

Whereas LO and NGF members were enthusiastic about the innovative configuration of the strategic network (Interviews, 2006–2008), the representative from Norwegian Industry claimed that it was the very *tradition* of cooperation that prompted such a successful partnership, substantiating our emphasis on the legacy of social corporatism:

“[The Gas Alliance] is not really a new phenomenon. The employer side and the employee side usually agree on industrial policy [...] and in 9 of 10 cases we agree with the regions. [The] gas alliance manifests itself around the gas issue, but it prolongs the traditional cooperation on Norwegian industrial policy” (interview, NI, 2007).

While the senior advisor to RCN responsible for Gassmaks agreed that labor organizations and regional interests have often been consulted in the development of R&D programs, he claimed that bottom-up initiatives as seen prior to Gassmaks was unusual. The former big program on the utilization of the gas value chain, SPUNG (1987–1994), was, by contrast, initiated by the Ministry of Oil and Energy, and most other related programs have been similarly steered top-down (interview, RCN, 2007). The LO dominance in the network behind the Gassmaks policy process underlines Rutherford and Holmes’ (2005) account of labor as a capable strategist for innovation policy, and demonstrates that trade unions can enjoy a level of influence on innovation policy processes beyond the symbolic stakeholding warned against by Jessop and Sum (2006). Moreover, it illustrates the empowerment that is possible through reflexive and somewhat “Schumpeterian” unionism union (Tufts, 2008).

Likewise, the networks at the regional level demonstrated how structurally oriented action, drawing upon actors associated with social corporatism, amplified their voice in attempting to attract state and private capital.

The strategic formulation of Gassmaks

We now turn to the strategic formulation through which the political process was mediated. The way in which the policy process was mediated should be seen as just as important as the network it was mediated through and from. Our analysis of strategic formulation follows Hay (1998), but bears in mind the distinction between a *necessary* logic of arguments on the one hand and the *normative* appropriateness of arguments on the other (Schmidt, 2002). The Gassmaks campaign followed a complex necessary logic of flexible economic restructuring, environmental considerations and natural gas price convergence on the one hand, while on the other hand utilizing the normative logic on resource management, value enhancement and employment, more inspired by the legacy of social corporatism.

Strategic formulation 1: the necessary logic of Gassmaks

The argumentation of Gassmaks was well adjusted to the “Schumpeterian” language of innovation and flexibility throughout the policy process (Hongset, 2005, 2008; RCN, 2006). The flexibility aspect was primarily related to the chemical and biological tailoring of products (RCN, 2006). Such innovative capacity was highlighted as a factor that would make Norwegian activities robust and would therefore reduce the risk of relocalization (interview, LO, 2007). However, the idea of competitiveness was also coupled to how Gassmaks could foster knowledge transfers systems, thus echoing the innovation systems literature (e.g. Lundvall, 2002): “[...] the likelihood of cooperation between researchers and visionary entrepreneurs is fairly high” (Interview, Sintef, 2006). Addressing the need for personnel to

make knowledge transfers possible also legitimized a focus on basic research in universities. References to past success stories in higher education were engaged in this respect: “[...] from SPUNG, we graduated 50 doctoral candidates, and they now hold leading positions in various Norwegian firms” (interview, Sintef, 2006). Finally, localized synergies in terms of knowledge spillover and shared costs were highlighted as extra benefits from Gassmaks projects (Hongset, 2008).

Competitiveness arguments also involved references to clean technology. In addition to substituting more polluting fossil fuels as reduction materials in the electrochemical industry (RCN, 2006), clean technology arguments envisaged Gassmaks’ contributions to advances in solar power technologies. For instance, *carbon black* is pure carbon that may be extracted from natural gas and used as a raw material for producing solar wafers (Carbontech, 2007).

The price of feedstock received much focus in the first implementation phase. Since *volume* remains important for innovations in petrochemical production, global pricing trends are crucial. Van Camp (2005) explains the geographical production shift from Europe and North America to the Middle East over the last two decades by the great price disparity that has developed because of the lack of alternative gas markets near the Middle East petroleum fields. However, as natural gas has become more mobile because of methods of liquefaction and regasification, some analysts predict a global convergence of prices (Bridge, 2004). This debate became an important window of opportunity for the Gas Alliance. If prices converge, it was argued that distance decay would regain its importance, as even a small difference in transport costs will be a substantial incentive to utilize the feedstock locally. Since the Norwegian mainland is close to the continental shelf’s gas resources, the argument was that Norway represents a competitive location for gas-based manufacturing. Although present in the Gassmaks report (RCN, 2006), this legitimization of the R&D program was primarily

elaborated *after* program implementation. In 2008, the consultant agency EconPöyry published a report (2008) that was commissioned by Gassmaks. The report concluded that if prices converge, this would benefit European petrochemical industries.

The “necessity” of the arguments outlined above reflects how competition state logics constitute a governmentality that permeates discursive and material practices and is a precondition for political strategy. However, we argue that while these parameters may promote the desires of business (Geddes, 2006), the complexity of spatio-temporal contingency (Schmidt, 2002; Jessop, 2007) adds a normative framing of arguments that opens up the balance of forces, empowering the strategic network in question in this paper..

Strategic formulation 2: The normative framing of Gassmaks

The *normative* framing of legitimacy is typically more contingent (Schmidt, 2002). This echoes Hay’s (1998) understanding of political action as being about absorbing particular understandings and arguments that exist as resources within a given state space. The path dependence of social corporatism represents a vital strategically selective context in this respect. Whereas former regional campaigns for infrastructure explicitly emphasized the state’s investment responsibilities (Underthun, 2008), the strategic formulation of Gassmaks took a more subtle approach. The notion of *rights* to natural resources reflects the heritage of infant industry development that had dominated Norwegian natural resource management since the concession laws (Engen, 2009). Different from the surge in resource nationalism in Latin America (Perreault, 2006), there are parallels in terms of questioning who has the power to manage a natural resource. Rather, Gassmaks expresses a sophisticated resource nationalism that questions how the value chain of natural gas is scaled and suggest strategies and arguments for why and how the resource should be re-embedded in Norwegian space to realize value enhancement (RCN, 2006). Gas exports considered as a “leakage” (interviews,

NGF, LO and PIL, 2006-08) is a metaphor for this problem. The metaphors of leakage and rights even find arguments in the resource curse hypothesis, a recurring theme in Norwegian natural gas management (Auty, 1995; Bridge, 2008). In its crude essence, this perspective suggests that a rich resource base may work counterproductively because a large but exhaustible resource extraction sector produces disinvestment, labor shortage and vulnerability in the manufacturing sector. These grim prospects are well reflected in the Gassmaks strategic formulation: “[...] we have to find a way to use the resources in a more diverse and stimulating way” (interview, LO, 2008). The resource curse argument was deployed actively in strategic formulation, criticizing the strategic context of shareholder value that “dictates” the national champions: “[...] strategic dominance of petroleum export in Norway is negative in the long run. The companies [Statoil and Hydro] are primarily concerned about short-term earnings from their global markets” (interview, NGF, 2007)”.

Normative strategic formulation in the Gassmaks process also specified what *types* of gas utilization should be *excluded*, namely the technology of liquefying natural gas (LNG) for long distance transport. Admittedly, this is a technology that has enabled some of the price convergence discussed as an *advantage* to Gassmaks (EconPöyry, 2008). LNG research was discussed as an area of research within the program as major firm Statoil and the research community Sintef/NTNU took a great interest in this, not least because of their expertise in the field (interview, Sintef 2006). A similar interest was expressed by the large corporations Hydro and Statoil, not least because LNG was not part of any large research program to date. It is likely that LNG would have dominated the program if the policy process had been more business–university driven (interview, Sintef, 2006). However, because of the union-inclusive character of the policy process and the distinctly *domestic* scaling of activities, LNG was excluded. There were clear reasons for this. Even though LNG technology enhances the geographical and by that the commercial reach of natural gas (Bridge, 2004), LO claimed that

“[...] it is merely a transport technology” (interview, LO, 2007). More importantly, LO did not believe that LNG could guarantee employment and domestic manufacturing, reflecting the normative basis for the Gassmaks strategy and the context of social corporatism. NI agreed: “[...] the main reason [against LNG research] is that there is enough already [in-house]. LNG does not guarantee activities beyond technology development [...] we wanted a *manufacturing* focus.” (interview, NI, 2007, our emphasis). The argument here was that capital-intensive LNG research would not influence manufacturing and would primarily benefit the large corporations whose value chains go beyond Norwegian space. To LO and NGF in particular, this could deepen the uneven and monopolistic nature of innovation policy in an economy dominated by a few national champions. In the aftermath of this discussion, LNG was included into the considerably larger and more general research program on developing Norway’s petroleum assets, *Petromaks* (RCN, 2009).

5. Concluding discussion

In an attempt to complement the literature on innovation policy, this paper has addressed the political dynamics of innovation policy through a Norwegian case study about the formation of a national research program for utilizing natural gas resources. The paper stressed that a business-and competition state-oriented strategically selective context was challenged by policy routines and normative underpinnings associated with social corporatism.

Three main traits of the alternative context for political action can be considered as crucial for political pervasiveness throughout the Gassmaks policy process. *First*, the partnership between industrial organizations and the regions built on the legacy of pre-1990s forms of cooperation. This helped the development of trust between the main drivers of the process. *Second*, the culture of bargaining with interest groups outside the peak organizations facilitated the involvement of research communities and regional interests. *Third*, a legacy of

politicizing investment and employment issues on the basis of spatial and social equality norms facilitated consensus within the Gas Alliance network and helped to legitimize the program in the Norwegian political setting. In spite of being situated in a national strategically selective context that seemed to favor petroleum extraction and export dominated by the globally oriented oil companies at the expense of downstream utilization in Norway, the legacy described above aided the inclusion of trade union representatives and regional interests as main advocates for the research program. However, the paper also stressed that the actors that drove the political process were compelled to confront the strategically selective context of the competition state in a number of ways, in this way demonstrating the dialectic of structure and agency within a strategic–relational approach as suggested by Hay (1998; 2002) and Jessop (Jessop, 2001).

The Gassmaks innovation initiative can be criticized for the narrowness of its social base and focus. The emphasis on (predominantly male) manufacturing employment may imply an exclusion of the broader population of labor, such as within the expanding services industries. There is also a danger of political lock-in that eliminates alternative development paths of innovation (Blake and Hanson, 2005; Grabher, 1993; Narula, 2002). Nevertheless, it is difficult to frame Gassmaks as a mere reproduction of blue-collar, heavy manufacturing in Norway. The emphasis on SME development as well as on jobs for scientists contrasts with the current characteristics of Norwegian resource-based industries (Narula, 2002).

Although we have argued that trade union involvement in the networks guiding the Gassmaks process went well beyond mere symbolic stakeholding (Jessop and Sum, 2006), there are also questions related to the strong focus on competitiveness in the program itself. Substantive involvement of trade unions may be of limited importance if the norms that guide organizations and policy processes have themselves changed towards a competition-oriented logic. However, in our view, the emphasis on competitiveness in the Gassmaks documents

does not imply any significant departure from the logic of social corporatism in which national adaptation to international competitiveness imperatives was always a key element. The postwar R&D agencies created by top Labor politicians in association with LO were indeed seen as major tools for such adaptation (Slagstad, 1998). Thus, the references to competitiveness in Gassmaks can be interpreted as a rejuvenation of distinct innovation policy features of the Norwegian variety of social corporatism, rather than a change towards competition state logic of the kind described by Jessop (2002).

While it is early to say much about the success of Gassmaks, there are aspects that have not turned out according to intentions. First, the government annual budgets have not allocated funding that matches the ambitions of the Gassmaks document. This is very much a source of concern for the Gassmaks board (Interview, 2009). Second, the domestic scaling of activities seems frail. In June 2007, the British chemical company *Ineos* acquired almost all Norwegian petrochemical assets and decided to shut down one of the major production plants in May 2008 (Plastforum, 2008). Although Ineos' role in Gassmaks is yet to be assessed, it is clear that any project embarked upon by the company will be a part of their overall global strategy and not confined to the Norwegian national scale. Moreover, applications for grants from domestic SMEs were scarce in the initial grant period compared with the expectations of members of the Gas Alliance, although the Gassmaks board now claims that there has been an increasing interest from smaller companies. In 2007 however, the big firms (Statoil and Hydro) and Sintef/NTNU received the bulk of funding (RCN, 2007). These remarks echo some of the criticism of both national and regional innovation systems in the innovation policy literature (Bunnell and Coe, 2001; Grande, 2001; Kuhlmann, 2001), as it seems hard to guarantee that economic activities are kept within the socially constructed boundaries as Gassmaks would require.

In a comparative perspective, the explicit focus on spatial equality and the inclusion of trade unions in the Gassmaks process may be seen as typical for the Nordic setting. Here, unions and regional interests still enjoy influence in policy processes focused on spurring innovation and competitiveness at various levels (Benner, 2003; Koch, 2005; Lundvall, 2002). A look at the organizations guiding Norwegian innovation policies may indicate that these offer particular state selectivities favoring such actors. Fagerberg (2009) and Benner (2003) note the lack of “modernization” of the organizations responsible for innovation policies in Norway compared with its Nordic neighbors and other advanced OECD states. Norway’s innovation policy system is still essentially a redressing of traditional regional development agencies in combination with a relatively subordinated research council. Few “buffers” between political mobilization and innovation policies seems to have been a strategic advantage for the groups promoting Gassmaks. The political legitimization of organizational conservatism in the innovation policy area also bolsters the impression of a retention of the strategic selectivity of social corporatism. The Minister of Trade and Industry in the newly reelected “red–green” government recently legitimized the lack of changes in the innovation policy apparatus by referring to the importance of other institutional features associated with Norwegian (and Nordic) social corporatism, such as wage equality, strong welfare policies, trust and worker influence for innovation performance. Thus, in the Norwegian case, the new discourse on the pro-innovation aspects of Nordic welfare regimes (Castells and Himanen, 2002), worker influence (Lundvall, 2002) and equality (Esping-Andersen, 2002) seems to help to moderate the demand for more autonomous and competition-oriented innovation bureaucracies.

6. Acknowledgement

We thank Jamie Peck, Ros Whitehead and 3 anonymous referees for providing excellent handling and constructive comments on how to improve the paper. The authors also thank Jan Fagerberg and the Centre for Advanced Study (University of Oslo), Marit Reitan, Jarle Hildrum, Asbjørn Karlsen, Gavin Bridge, Neil M. Coe, Martin Hess, David Jordhus-Lier and Mats Benner for valuable comments and enthusiasm. Finally, the authors thank the board executive in Gassmaks, Hogne Hongset, for generosity and support. The paper is part of the project “Multi-level governance and regional development: the politics of natural gas” and financed by the Research Council of Norway’s programme *Democracy, Governance and Regionalism* (2005-2010).

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